

Attorney's Docket: 2000DE441D
Serial No.: 10/806,095
Art Unit 1714
Response to Office Action, Dated 06/28/2006

This listing of claims will replace all prior versions, and listings of claims in the application:

1.(Deleted)

2.(Deleted)

3.(Deleted)

4.(Deleted)

5.(Deleted)

6.(Deleted)

7.(Previously Presented) A low-temperature-stabilized solution comprising from 1 to 80% by weight of an organic solvent and a low-temperature-stabilized additive comprising:

A) a fatty acid mixture of

A1) from 1 to 99% by weight of at least one saturated mono- or dicarboxylic acid having from 6 to 50 carbon atoms,

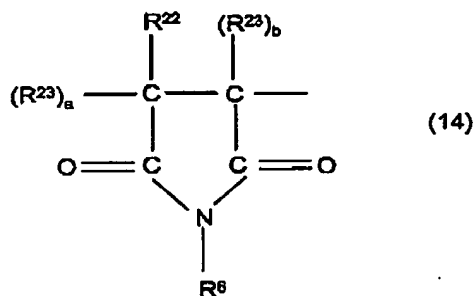
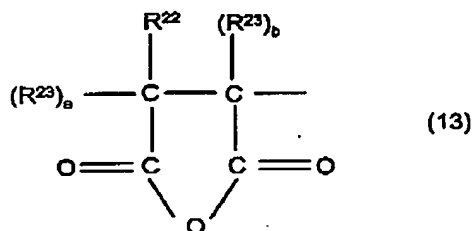
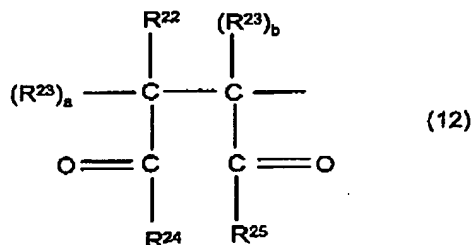
A2) from 1 to 99% by weight of at least one unsaturated mono- or dicarboxylic acid having from 6 to 50 carbon atoms
and

B) at least one polar nitrogen-containing compound which is effective as paraffin dispersant in middle distillates, in an amount of from 0.01 to 90% by weight, based on the total weight of A1), A2) and B),

wherein the fatty acid mixture of A1) and A2) has an iodine number of at least 40 g of I / 100 g, and said at least one polar nitrogen-containing compound B) is a terpolymer comprising:

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- I) 20 – 80 mol% of a divalent structural unit selected from the group consisting of formula 12, 14, 13, and mixtures thereof,



where

R^{22} and R^{23} , independently of one another, are hydrogen or methyl,

a and b are zero or one and $a + b$ is one,

R^{24} and R^{25} are identical or different and are $-\text{NHR}^6$, $\text{N}(\text{R}^6)_2$ or $-\text{OR}^{27}$ or a combination thereof, and R^{27} is a cation of the formula $\text{H}_2\text{N}(\text{R}^6)_2$ or H_3NR^6 ,

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$$\begin{array}{c} \text{R}^{28} \\ | \\ \text{--- CH}_2\text{--- C ---} \\ | \\ \text{R}^{29} \end{array} \quad (15)$$

R²⁹ is C₆-C₆₀-alkyl or C₆-C₁₈-aryl, and

$$\begin{array}{c} \text{R}^{30} \\ | \\ \text{--- CH}_2\text{--- C ---} \\ | \\ \text{R}^{33} - \text{O} - (\text{CH}_2\text{--- CH---O})_m - \text{R}^{32} \\ | \\ \text{R}^{31} \end{array} \quad (16)$$

where R³⁴ is C₁-C₄₀-alkyl, C₆-C₁₀-cycloalkyl or C₆-C₁₈-aryl.

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9.(Deleted)

10.(Canceled)

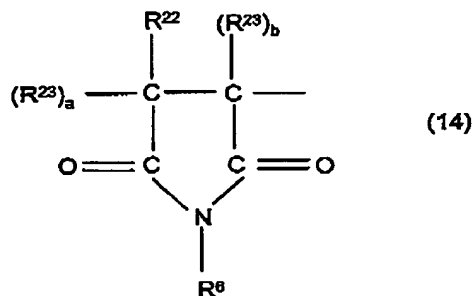
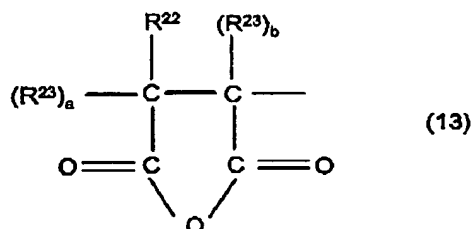
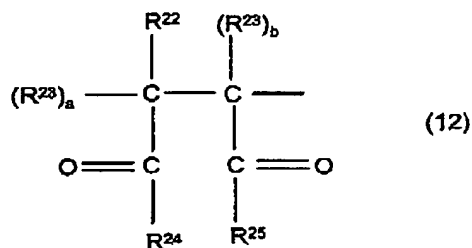
11.(Currently Amended) A method for improving the lubrication properties of low-sulfur middle distillates having a sulfur content of up to 0.05% by weight, said method comprising at room temperature or below adding to said low-sulfur middle distillates an additive comprising:

- A) a fatty acid mixture of
 - A1) from 1 to 99% by weight of at least one saturated mono- or dicarboxylic acid having from 6 to 50 carbon atoms,
 - A2) from 1 to 99% by weight of at least one unsaturated mono- or dicarboxylic acid having from 6 to 50 carbon atoms, and
- B) at least one polar nitrogen-containing compound which is effective as paraffin dispersant in middle distillates, in an amount of from 0.01 to 90% by weight, based on the total weight of A1), A2) and B),

wherein the fatty acid mixture of A1) and A2) has an iodine number of at least 40 g of I / 100 g, wherein said at least one polar nitrogen-containing compound B) is a terpolymer comprising:

- I) 20 – 80 mol% of a divalent structural unit selected from the group consisting of formula 12, 14, 13, and mixtures thereof,

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where

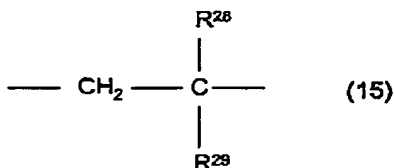
R^{22} and R^{23} , independently of one another, are hydrogen or methyl,

a and b are zero or one and $a + b$ is one,

R^{24} and R^{25} are identical or different and are $-NHR^6$, $N(R^6)_2$ or $-OR^{27}$ or a combination thereof, and R^{27} is a cation of the formula $H_2N(R^6)_2$ or H_3NR^6 ,

II) 19 - 80 mol% of a divalent structural unit of formula 15

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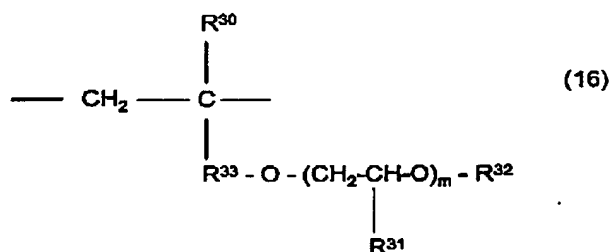


In which

R^{28} is hydrogen or $\text{C}_1\text{-C}_4$ -alkyl, and

R^{29} is $\text{C}_6\text{-C}_{60}$ -alkyl or $\text{C}_6\text{-C}_{18}$ -aryl, and

III) 1 - 30 mol% of a divalent structural unit of formula 16



in which

R^{30} is hydrogen or methyl,

R^{31} is hydrogen or $\text{C}_1\text{-C}_4$ -alkyl,

R^{33} is $\text{C}_1\text{-C}_4$ -alkylene,

m is a number from 1 to 100,

R^{32} is $\text{C}_1\text{-C}_{24}$ -alkyl, $\text{C}_5\text{-C}_{20}$ -cycloalkyl, $\text{C}_6\text{-C}_{18}$ -aryl or -C(O)-R^{34} ,

where R^{34} is $\text{C}_1\text{-C}_{40}$ -alkyl, $\text{C}_5\text{-C}_{10}$ -cycloalkyl or $\text{C}_6\text{-C}_{18}$ -aryl.

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12.(Previously Presented) The method of claim 11, wherein the additive further comprises an organic solvent selected from the group consisting of aliphatic hydrocarbon, aromatic hydrocarbon, oxygen-containing hydrocarbon, and mixtures thereof.

13.(Previously Presented) The method of claim 11, wherein component B comprises oil-soluble polar amine salts or amides.

14.(Previously Presented) The method of claim 11, wherein component A) comprises from 1 to 40% by weight of resin acids.

15.(Previously Presented) The method of claim 11, wherein component A) comprises from 1 to less than 20% by weight of A1) and from greater than 80 to 95% by weight of A2).

16.(Previously Presented) The method of claim 11, wherein A1) and A2) are each a mono- or dicarboxylic acid having from 12 to 22 carbon atoms.

17.(Previously Presented) The low-temperature-stabilized solution of claim 7, wherein the organic solvent selected from the group consisting of allphatic hydrocarbon, aromatic hydrocarbon, oxygen-containing hydrocarbon, and mixtures thereof.